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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of )  
HÖSSEL et al. ) Art Unit: 1616  
Serial No. 09/771,595 ) Examiner: Lamm, M.  
Filed: January 30, 2001 )  
For: COSMETIC OR DERMATOLOGICAL SUNSCREEN PREPARATION

Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

BRIEF ON APPEAL

Sir:

This appeal is from the examiner's final rejection of claims 1-5 and 7-17 in the office action mailed March 4, 2002, and further from the advisory action mailed June 27, 2002.

REAL PARTY IN INTEREST

The real party in interest is BASF Aktiengesellschaft of Ludwigshafen, Germany.

Reel 011489, Frame 0137, recorded on January 30, 2001.

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RELATED APPEALS AND INTERFERENCES

To appellants' knowledge and belief, there are no interferences or other appeals which will directly affect or be directly affected by or have a bearing on the Board's decision in this application.

STATUS OF CLAIMS

Claims 1-5 and 7-17 remain in the application and stand rejected under 35 USC §103(a) as being unpatentable over Dieing et al. (EP 893,117).

STATUS OF AMENDMENTS

Amendment to claim 17 after the last rejection has been filed and entered.

SUMMARY OF INVENTION

The present claims are drawn to a copolymer/inorganic UV filter mixture which exhibits a synergistic sun protection effect. The copolymer portion is obtained by free-radical initiated solution polymerization of at least one N-vinylimidazole or diallylamine, at least one other additional and different neutral or basic water-soluble monomer, and other optional ingredients. The claims are also drawn to a process for producing a sun protection composition from this mixture, and to a process for protecting human skin through applying the sun protection composition.

ISSUES

Whether claims 1-5 and 7-17 are unpatentable under 35 USC § 103 as being obvious from the disclosure of Dieing et al. (EP 893,117) in view of either Matsumoto et al. (US 5,603,926) or Tanner et al. (US 5,827,508).

GROUPING OF CLAIMS

The claims have not been argued separately, and will not be argued separately here.

ARGUMENTS

The following legal authorities are relied on in the following arguments in the order in which they are cited:

*In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)

*In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)

*In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)

*In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)

THE REJECTION

The examiner has not met her burden of establishing *prima facie* obviousness of the present claims over Dieing in view of either Matsumoto or Tanner. To establish *prima facie* obviousness, the examiner must show in the prior art some suggestion or

motivation to make the claimed invention, a reasonable expectation for success in doing so, and a teaching or suggestion of each claim element (see, e.g., *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986); *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

As indicated above, the present claims are drawn to a composition comprised of a copolymer and an inorganic UV filter. The particular copolymer used in this composition gives a synergistic effect when combined with the inorganic UV filter. This fact is both unexpected and beneficial. The copolymer is made by free-radical initiated solution polymerization of an N-vinylimidazole or diallylamine monomer together with at least one other neutral or basic water-soluble monomer (and other optional ingredients).

The Dieing reference discloses copolymers of a cationic or quaternizable monomer and a bi- or polyfunctional monomer (together with other optional monomers) produced by radical initiated copolymerization. These crosslinked polymers give "excellent conditioning properties without ... build-up" when "added to shampoos" (Dieing, abstract). An example is described in which 3-methyl-1-vinylimidazolium chloride, N-vinylpyrrolidone, N,N'-divinylethyleneurea, and 2,2'-azobis(2-amidinopropane)-2HCl were combined and copolymerized.

Tanner discloses sunscreen compositions comprising a surface treated zinc oxide and a dibenzoylmethane sunscreen compound (col.2:18-20). Surface treatment of the zinc oxide is said to make "the zinc oxide less reactive to the dibenzoylmethane

derivative" in the compound (col.2:24-25). In this way, the resulting compositions are more "chemically, physically, and photo-stable" (col.2:40-41). The sunscreen compositions can be made into "creams, lotions, milks, mousses, gels, oils, tonics, sprays, hand and body lotions, cold creams, facial moisturizers, anti-acne preparations, topical analgesics, makeup, [and] lipstick" (col.8:50-53). The compositions may also contain crosslinked polyacrylate polymers as thickeners or gelling agents (col.10:34-36).

The Matsumoto reference discloses a cationic copolymer of an acrylic monomer, a monomer having an acryloyl group, a monomer having a methacryloyl group, and a crosslinking vinyl monomer, together with other optional ingredients (col.3:7-57). The copolymer is used as a thickener in cosmetic products such as "hair cream, hair lotion, hair treatment, hair setting gel, pack, hand cream, creamy lotion, face cleansing gel, shaving gel, hair rinse and the like" (col.11:21-23). UV-absorbers disclosed as being of use in the general cosmetic composition include "benzoic acid derivatives, anthranilic acid derivatives, salicylic acid derivatives, cinnamic acid derivatives, [and] benzophenone derivatives" (col.10:61-64). Pigments may also be employed in this composition (col.10:7), though specific examples of suitable pigments are not given. Preparative example 51, however, includes five different metal oxides that are commonly used as pigments (col.48:27-30).

The examiner asserts that one of skill in the art would be motivated to employ the "sunscreens" of either Tanner or Matsumoto in the "hair care compositions" of

Dieing “for their art-recognized purpose[s]” (paper 7:p.4). Such a combination would allegedly be desirable from the skilled artisan’s expectation of “improved photostability, chemical stability and physical stability … as well as good UVA protection” (paper 7:pp.4-5).

These arguments, however, employ inaccurate characterizations of the disclosures on which they are based, and applicants are not convinced that one of skill in the art would draw the imputed conclusions. For instance, though Tanner does, certainly, disclose a sunscreen product, describing Matsumoto’s composition primarily in this way seems something of a stretch. Matsumoto does disclose several suitable organic UV-absorbers that may be employed, and yet the examiner does not indicate that any examples using these compounds were created. The cited example 51 of this reference employs none of the enumerated organic UV-absorbers, and given the metal oxides’ dual art-recognized uses, as UV-absorbers and as pigments, applicants submit that one of skill in the art would view this combination of oxides to be employed in producing a pleasing color in the cream.

The lack of suitability for metal oxides as UV-absorbers in such compositions is actually recited in the Tanner reference, which states that “these materials tend to agglomerate, thus losing their effectiveness,” and that they “are reactive materials which exhibit a wide range of reactivity” (col.2:11-16). It is only through surface-treating zinc oxide that Tanner is able to achieve the “unexpected photostability, chemical stability, and physical stability” while continuing to provide “good UVA protection”

(col.2:20-22).

Observing these two references, one of skill in the art would more likely conclude that only organic UV-absorbers (Matsumoto) or surface-treated metal oxides (Tanner) are suitable for incorporating into compositions with copolymer ingredients. Accordingly, the disclosure of Matsumoto is entirely inapplicable to the present discussion, and applicants will, from here, therefore, focus solely on the examiner's alleged combination of Dieing and Tanner.

The examiner argues that one of ordinary skill in the art would find motivation to introduce the sunscreen of Tanner into the "hair care compositions" of Dieing (paper 7:p.4). In reviewing the disclosure of Dieing, applicants note that the only hair care compositions expressly discussed are shampoos. The examiner's suggestion that one of skill in the art would be motivated to introduce a UV-absorbing composition into a shampoo exhibiting no "build-up effect" is received with skepticism and curiosity. If the UV-absorbing compounds were introduced into this particular hair care composition, it seems that one of skill in the art would recognize that the UV-absorbing compound would be washed out of the hair with the copolymer. The fact that this particular copolymer leaves no build-up on the hair underscores the difficulty with which applicants could accept the examiner's proposition. The purpose of a UV-absorbing material is lost if that material is unable to remain in the physical location where it can actually absorb UV light.

Further, the examiner's statement of motivation, that "improved photostability,

chemical stability, and physical stability" would result from adding the UV-absorbing composition to the Dieing shampoo, is incongruous in the context. Tanner discloses that it is the *surface-treating* of the metal oxide that results in unexpected stability, and not combination of the metal oxide with an organic compound. No support has been cited to suggest that combining the copolymer of Dieing with a metal oxide would result in the alleged improved stability.

The examiner also argues in the alternative that one of skill in the art would be motivated to include the copolymer of Dieing in the cosmetic compositions of Matsumoto or Tanner. As established above, Matsumoto does not expressly teach use of inorganic UV-absorbers, and the inclusion of metal oxides in example 51 of that reference is for pigment purposes. Even if the Matsumoto reference did expressly disclose such a use for metal oxides, one of skill in the art would be unlikely to find motivation for introducing the copolymer of Dieing into that UV-absorbing composition, or, likewise, into that of the Tanner disclosure.

The disclosed UV-absorbing compounds of Tanner, and those allegedly disclosed in Matsumoto, like all sunscreen-type compositions, are known to be intended for long-term contact with the skin. The examiner argues that conditioning properties of the copolymer are sufficient to supply the needed motivation for including them in UV-absorbing compositions. However, the weight of the disclosure in Dieing is in the composition being a shampoo, and in the improved characteristics desirable in shampoos. Further, the lack of "build-up effect" indicates that the copolymer washes off

easily, and that it would not be suitable for a UV-absorbing composition which is to remain on the individual, and to resist being washed off inadvertently.

CONCLUSION

For all of the above reasons, applicants remain unconvinced that the examiner has sufficiently established *prima facie* obviousness, or that the disclosures do not teach away from their respective combination. Accordingly, applicants respectfully request that the rejection of claims 1-5 and 7-17 be withdrawn, and that the application be remanded to the examiner to be issued.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

Respectfully submitted,  
KEIL & WEINKAUF



David C. Liechty  
Reg. No. 48,692

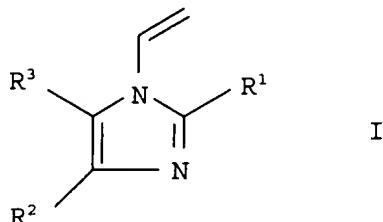
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APPENDIX

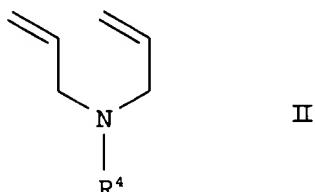
1. A mixture comprising
  - A) at least one copolymer obtainable by
    - (i) free-radically initiated solution polymerization of a monomer mixture of
      - (a) 0.01 to 99.99% by weight of at least one monomer chosen from the group consisting of N-vinylimidazoles and diallylamines, optionally in partially or completely quaternized form;
      - (b) 0.01 to 99.99% by weight of at least one neutral or basic water-soluble monomer which is different from (a);
      - (c) 0 to 50% by weight of at least one unsaturated acid or an unsaturated anhydride;
      - (d) 0 to 50% by weight of at least one free-radically copolymerizable monomer which is different from (a), (b) and (c); and
      - (e) 0 to 10% by weight of at least one monomer having at least two ethylenically unsaturated nonconjugated double bonds which acts as crosslinker, and
    - (ii) subsequent partial or complete quaternization or protonation of the polymer where the monomer (a) is not quaternized or only partially quaternized  
and
  - B) at least one inorganic UV filter.
  2. A mixture as claimed in claim 1, wherein the copolymer A) is obtainable by solution polymerization in water.
  3. (twice amended) A mixture as claimed in claim 1, wherein the monomer (e) is used in a weight amount of from 0.01 to 10%.
  4. A mixture as claimed in any of claims 1 to 3, wherein the protonation according to (ii) takes place during the preparation of the mixture.

5. A mixture as claimed in any of claims 1 to 4, wherein the monomer (a) used is at least one N-vinylimidazole derivative of the formula (I)



in which the radicals R<sup>1</sup> to R<sup>3</sup>, independently of one another, are hydrogen, C<sub>1</sub>-C<sub>4</sub>-alkyl or phenyl.

6. A mixture as claimed in any of claims 1 to 4, wherein the monomer (a) used is at least one diallylamine derivative of the formula (II)



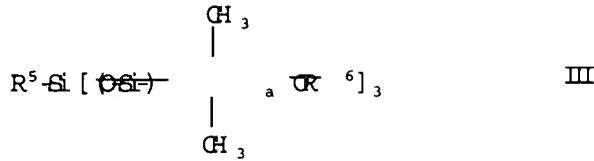
in which the radical R<sup>4</sup> is C<sub>1</sub>-C<sub>24</sub>-alkyl.

7. A mixture as claimed in any of claims 1 to 6, wherein the monomer (b) used is at least one N-vinylactam.

8. A mixture as claimed in any of claims 1 to 7, comprising, as inorganic UV filter B), at least one micronized metal oxide chosen from the group consisting of titanium dioxide, zinc oxide, cerium oxide, aluminum oxide, silicon oxide, zirconium oxide, manganese oxide, aluminum oxide and iron oxide.

9. (amended) A mixture as claimed in claim 1, comprising, as inorganic UV filter B), at least one hydrophobicized metal oxide chosen from the group consisting of titanium dioxide and zinc oxide.

10. A mixture as claimed in claim 9, in which the metal oxide has been coated with a silicone of the formula III



in which, independently of one another,  $\text{R}^5$  is  $\text{C}_1\text{-C}_{12}$ -alkyl and  $\text{R}^6$  is methyl or ethyl, and  $a$  is a value from 4 to 12.

11. A mixture as claimed in any of claims 1 to 10, wherein the proportion of inorganic UV filters is 0.1 to 99.9% by weight.
12. A mixture as claimed in any of claims 1 to 11, comprising at least one further organic UVA and/or UVB filter.
13. (three times amended) A process for the preparation of cosmetic and dermatological preparations wherein a mixture is prepared as defined in claim 1, and then optionally mixed with other compounds.
14. (three times amended) The process as claimed in claim 13 for producing cosmetic and dermatological preparations for protecting the human skin or human hair against solar rays, wherein the mixture is prepared, and then mixed with compounds which absorb in the UV region and which are known per se for cosmetic and pharmaceutical preparations.
15. A cosmetic or dermatological sunscreen preparation for protecting the human skin or human hair against solar rays, comprising a mixture defined as in any of claims 1 to 12.
16. (amended) A mixture comprising
  - A) at least one copolymer obtained by
    - (i) free-radically initiated solution polymerization of a monomer mixture of
      - (a) 10 to 70% by weight of 3-methyl-1-vinylimidazolium methosulfate,
      - (b) 20 to 89.95% by weight of N-vinylpyrrolidone,
      - (c) 0.05 to 5% by weight of N,N'-divinylethylenurea

and

- B) 30 to 90% by weight, based on the solids content of the mixture, of at least one hydrophobicized metal oxide chosen from the group consisting of titanium dioxide and zinc oxide.
- 17. A process for protecting the human skin or human hair against solar rays, wherein an effective amount of a cosmetic or dermatological preparation prepared according to the process claimed in claim 13 is applied to the human skin or human hair.



AF/1610/00

THE UNITED STATES PATENT AND TRADEMARK OFFICE  
Re: Appeal to the Board of Appeals

In re Application of

HOESSEL et al.

Serial No. 09/771,595

Filed: January 30, 2001

) Art Unit: 1616

) Examiner: Lamm

For: COSMETIC OR DERMATOLOGICAL SUNSCREEN PREPARATIONS

To: Hon. Commissioner of Patents and Trademarks

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner of Patents and Trademarks, Washington, D. C. 20036, on:

August 26, 2002

Date of Deposit

Herbert B. Keil

Person Making Deposit

Herbert B. Keil

Signature

August 26, 2002

Date of Signature

1.  **NOTICE OF APPEAL:** Applicant hereby appeals to the Board of Appeals from the decision dated \_\_\_\_ of the Primary Examiner finally rejecting claims \_\_\_\_.
2.  A check to cover the extension fee of \$\_\_\_\_ is enclosed.
3.  **BRIEF** on appeal in this application is transmitted herewith.
4.  An Oral Hearing is requested.  
 The Oral Hearing fee of \$280.00 is enclosed.
5.  Fee \$320.00  
 Enclosed
6.  The Commissioner is hereby authorized to charge any fees which may be further required, or credit any over payment to Account No. 11-0345. A duplicate copy of this sheet is attached.

Respectfully submitted,  
KEIL & WEINKAUF

By   
David C. Lieshty  
Reg. No. P48692

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